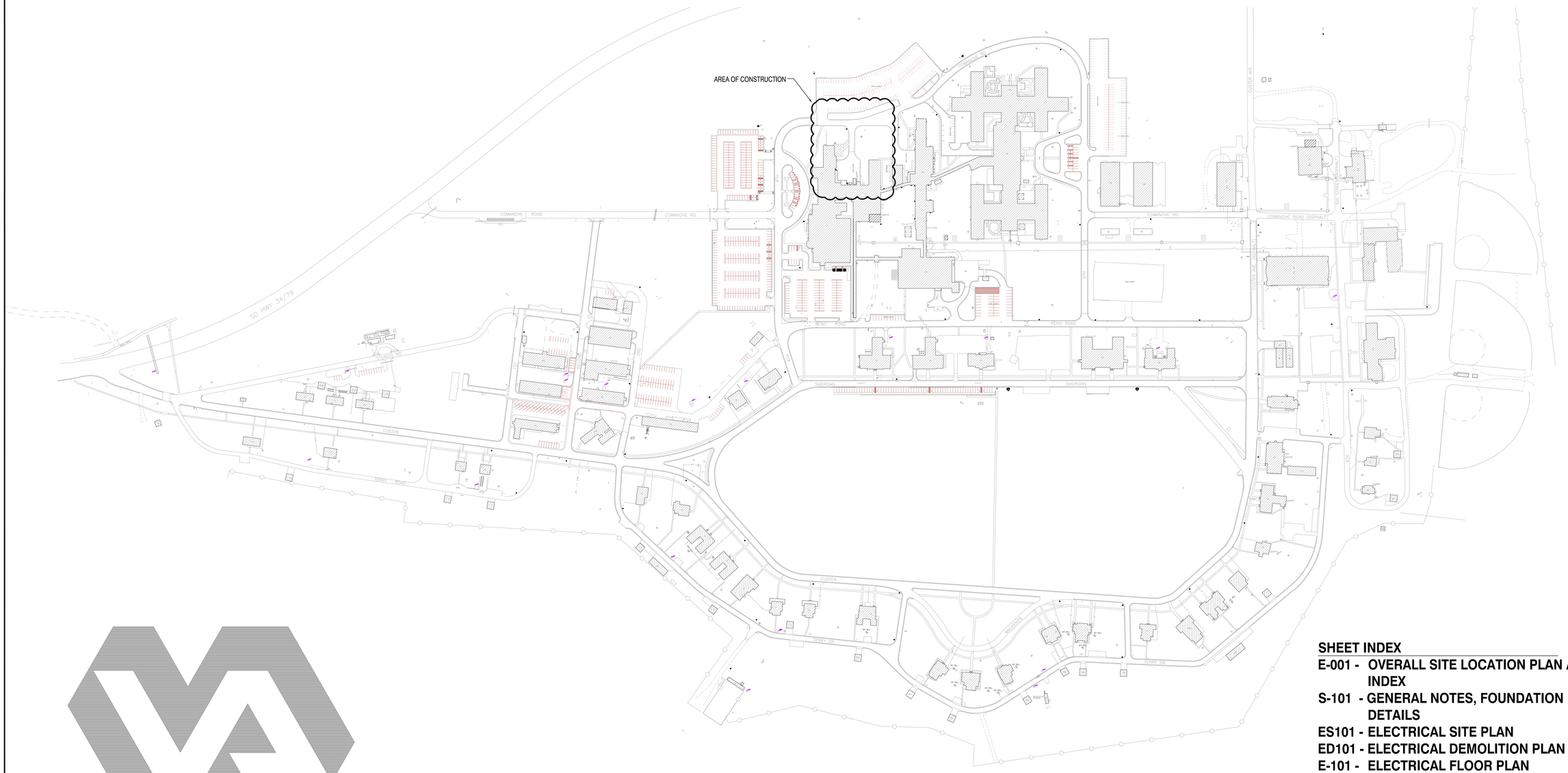
RELOCATE GENERATOR AND UPGRADE EMERGENCY POWER

PROJECT NO. 568-13-101



SHEET INDEX

E-001 - OVERALL SITE LOCATION PLAN AND SHEET INDEX
S-101 - GENERAL NOTES, FOUNDATION PLANS AND DETAILS
ES101 - ELECTRICAL SITE PLAN
ED101 - ELECTRICAL DEMOLITION PLAN
E-101 - ELECTRICAL FLOOR PLAN
E-601 - PARTIAL DISTRIBUTION RISER DIAGRAM AND SCHEDULES

V.A. MEDICAL CENTER
FT. MEADE, S.D.

PLAN NORTH

F1 OVERALL SITE PLAN
SCALE: 1" = 150'-0"

Revisions	Date

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 6729
DARRELL L BREN
DATE: 7/19/2013

ARCHITECT/ENGINEERS:

TSP, Inc.
1112 N. West Ave.
Sioux Falls, SD 57104
phone: (605) 336-1160
fax: (605) 336-7926
www.teamtsp.com
TSP PROJECT #04131190

To Solve. To Excel. Together.

Drawing Title	OVERALL SITE PLAN AND SHEET INDEX
Approved Project Director	---
Project Title	Relocate Generator and Upgrade Emergency Power, Building 113
Location	Ft. Meade, South Dakota
Date	7/19/2013
Checked	DLB
Drawn	KAK
Project Number	568-13-101
Building Number	113
Drawing Number	E-001
Dwg.	1 of 6

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

GENERAL NOTES FOR STRUCTURAL

DESIGN CODE

1. INTERNATIONAL BUILDING CODE, 2012

DESIGN LOADS

1. DOCK LOADS = 100PSF

MATERIALS GRADES AND STRENGTHS

1. CAST-IN-PLACE CONCRETE
FOOTINGS AND FOUNDATIONS – 4500 PSI
EXTERIOR SLAB ON GRADE – 4500 PSI

2. REINFORCING STEEL
BARS – ASTM A615 (GRADE 60)
BARS – ASTM A706 (WELDABLE REBAR) USE WHERE INDICATED
WELDED WIRE FABRIC – ASTM A185

3. STRUCTURAL STEEL
WIDE FLANGE SHAPES – ASTM A992 (Fy=50 KSI)
PLATES AND OTHER SHAPES – ASTM A36 (Fy=36 KSI)
HOLLOW STRUCTURAL SECTION (RECTANGULAR)– ASTM A500, GRADE B (Fy=46 KSI)
HOLLOW STRUCTURAL SECTION (ROUND) – ASTM A500, GRADE C (Fy=42 KSI)
STEEL PIPE – ASTM A53
HIGH STRENGTH BOLTS, UNO – A325N
ANCHOR BOLTS/RODS – ASTM F1554, GRADE 36
EXPANSION BOLTS – HILTI KWIK BOLT III
HEADED STUDS – ASTM A108

GENERAL

1. THE INFORMATION SHOWN ON THE STRUCTURAL DRAWINGS IS NOT TO BE SCALED, AS THE ITEMS SHOWN MAY NOT BE TO SCALE FOR THE SPECIFIC LOCATION.

2. NO OPENINGS OR SLEEVES SHALL BE CUT OR PROVIDED IN WALLS OR FLOOR CONSTRUCTION WITHOUT APPROVAL BY THE A/E.

3. EXAMINE ELECTRICAL DRAWINGS TO DETERMINE LOCATION AND DIMENSIONS OF CHASES, INSERTS, OPENINGS, SLEEVES, REVEALS, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON STRUCTURAL DRAWINGS.

4. BEFORE FABRICATION AND ERECTION OF ANY MATERIALS, FIELD VERIFY ALL EXISTING ELEVATIONS, DIMENSIONS AND CONDITIONS AS SHOWN ON THE DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT/ENGINEER AT ONCE FOR RESOLUTION.

5. STRUCTURAL MEMBERS INCLUDING JOISTS, SLABS, BEAMS, TRUSSES, COLUMNS AND WALLS ARE DESIGNED FOR "IN PLACE" LOADS. CONTRACTOR IS RESPONSIBLE FOR BRACING, WITHOUT OVERSTRESSING, ALL STRUCTURAL ELEMENTS (AS REQUIRED AT ANY STAGE OF CONSTRUCTION) UNTIL COMPLETION OF THIS PROJECT.

FOUNDATIONS

1. FOOTINGS HAVE BEEN DESIGNED FOR A MAXIMUM SOIL BEARING PRESSURE OF 2500 PSF. NO FOUNDATION WORK SHALL PROCEED UNTIL VA APPROVAL. IF THE SOIL AT THE FOOTING ELEVATIONS SHOWN IS OF QUESTIONABLE BEARING VALUE, NOTIFY THE ARCHITECT/ ENGINEER AT ONCE FOR RESOLUTION.

2. TESTING SERVICE MUST INSPECT AND APPROVE SUBGRADES AND FILL LAYERS BEFORE FURTHER CONSTRUCTION WORK IS PERFORMED THEREON. NOTIFY TESTING SERVICE PRIOR TO PROCEEDING WITH PLACEMENT OF FOOTINGS, FILL, OR OTHER CONSTRUCTION OVER SUBGRADES AND FILL.

3. WATER SHALL NOT BE PERMITTED TO POND IN FOOTING EXCAVATION. KEEP EXCAVATION DRY. FAILURE TO DO SO WILL BE CAUSE FOR REQUIRING CONTRACTOR TO REMOVE WATER DAMAGED SOILS AND REPLACE WITH CONTROLLED FILL AS DIRECTED.

4. SHOULD ANY QUESTIONABLE CONDITIONS BE ENCOUNTERED DURING EXCAVATION, NOTIFY A/E IMMEDIATELY. FOOTING ELEVATIONS ARE SUBJECT TO CHANGE DEPENDING ON SOIL CONDITIONS ENCOUNTERED.

5. REMOVE ANY ABANDONED SEWER OR SERVICE LINE ENCOUNTERED DURING EXCAVATION WITHIN THE BUILDING LINES. SHOULD SUCH LINES BE FOUND BELOW OR ADJACENT TO FOOTING LOCATIONS, NOTIFY THE A/E.

6. ALL FOOTINGS SHALL BE CENTERED UNDER WALLS. NO OFFSETS SHALL BE PERMITTED.

7. WALLS RETAINING SOIL HAVE BEEN DESIGNED FOR AN EQUIVALENT FLUID PRESSURE OF 50 PCF. ONLY FREE DRAINING GRANULAR FILL SHALL BE USED.

8. WHERE FILL MATERIAL IS PLACED ON BOTH SIDES OF GRADE BEAMS OR WALLS, IT SHALL BE PLACED IN LAYERS ALTERNATELY ON OPPOSITE SIDES TO MAINTAIN LEVELS THAT WILL AVOID DISPLACEMENT OF, OR DAMAGE TO, THE WALLS OR BEAMS.

9. WHERE FILL MATERIAL IS PLACED ON ONE SIDE OF A WALL, THE WALL SHALL BE ADEQUATELY SHORED AND BRACED OR THE MATERIAL SHALL NOT BE PLACED UNTIL SUPPORTING FLOOR SLABS HAVE BEEN POURED AND SET.

10. NO FILL OR BACKFILL SHALL BE "SETTLED" BY THE USE OF WATER.

11. PROVIDE DRAINAGE COURSE BELOW ALL INTERIOR, EARTH SUPPORTED, CONCRETE SLABS UNLESS NOTED OTHERWISE. REFERENCE PLANS AND SPECIFICATIONS.

12. PROTECT IN-PLACE FOUNDATIONS AND SLABS ON GRADE FROM FROST PENETRATION UNTIL PROJECT COMPLETION.

13. SLOPE BETWEEN ADJACENT FOOTINGS OR EXCAVATIONS SHALL NOT EXCEED ONE VERTICAL TO TWO HORIZONTAL. STEP FOOTINGS DOWN AS NECESSARY TO MAINTAIN THIS SLOPE.

14. AT LOCATIONS IN WHICH UTILITIES PENETRATE THE FOUNDATION WALL, PROVIDE A SLEEVE IN THE CONCRETE FOUNDATION WALL. (REF DETAIL D2/S-101)

CONCRETE

1. CODE FOR REINFORCED CONCRETE DESIGN AND CONSTRUCTION IS ACI 318, LATEST EDITION.

2. ARRANGEMENT AND BENDING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL, LATEST EDITION

3. IN ADDITION TO OTHER REINFORCING NOTED, PROVIDE 2 – #5 ON EVERY SIDE OF EACH OPENING IN CONCRETE WALLS. EXTEND #5 BARS 24" BEYOND EACH EDGE OF OPENING.

4. POLYPROPYLENE FIBER REINFORCING, FIBRILLATED, (BY FIBERMESH OR APPROVED EQUAL) IS TO BE USED FOR ALL INTERIOR AND EXTERIOR SLAB-ON-GRADE LOCATIONS SHOWN ON THESE STRUCTURAL SHEETS AS TEMPERATURE AND SHRINKAGE REINFORCING. APPLY REINFORCING AT THE MANUFACTURER'S RECOMMENDED RATE OR 1.5 LB/CY, WHICHEVER IS GREATER.

5. AT FLOOR DRAINS, SLOPE FLOOR UNIFORMLY THROUGHOUT THE ROOM TO THE DRAIN, UNLESS SHOWN OTHERWISE.

6. ALL REINFORCING BARS SHALL BE LAP SPLICED WITH THE GREATER LENGTH OF A CLASS B TENSION LAP SPLICE OR 50 BAR DIAMETERS (FOR #6 BARS AND SMALLER) OR 62 BAR DIAMETERS (FOR #7 AND GREATER), EXCEPT WHERE NOTED OR DETAILED OTHERWISE. STAGGER LAPS IN SLABS AND WALLS. SPLICE BARS IN GRADE BEAMS, STRUCTURAL SLABS, JOISTS, BEAMS, PILASTERS OR COLUMNS ONLY WHERE SHOWN ON DRAWINGS OR SCHEDULES APPROVED BY A/E.

7. MINIMUM CONCRETE COVER TO REINFORCING STEEL, UNO, SHALL BE AS FOLLOWS:

SURFACES CAST AGAINST EARTH – 3"

FORMED SURFACES IN CONTACT WITH EARTH OR EXPOSED TO WEATHER:
#6 BAR OR LARGER – 2"
#5 BAR OR SMALLER – 1-1/2"

FORMED SURFACES NOT IN CONTACT WITH EARTH OR EXPOSED TO WEATHER:
WALLS, SLABS, JOISTS
#14 AND #18 BARS – 1-1/2"
#11 BAR OR SMALLER – 3/4"
BEAMS, COLUMNS – 1-1/2"

8. DETAIL AND PROVIDE SUITABLE WIRE SPACERS, CHAIRS, TIES, ETC., FOR SUPPORTING REINFORCING STEEL IN THE PROPER POSITION WHILE PLACING CONCRETE.

9. ALL CHAIRS SUPPORTED BY GRADE SHALL INCLUDE SAND PLATES.

10. BAR SUPPORTS, WHICH COME IN CONTACT WITH EXPOSED SURFACES, SHALL HAVE PLASTIC OR RUBBER TIPS OR BE STAINLESS STEEL.

11. PROVIDE HOOKED DOWELS OF SAME SIZE AND SPACING AS VERTICAL OR COLUMN REINFORCING AT THE FOUNDATION, UNLESS NOTED OTHERWISE. ALL HOOKED DOWELS SHALL BE TIED IN PLACE PRIOR TO CONCRETE PLACEMENT.

12. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF WALLS, BEAMS, BOND BEAMS, AND FOOTINGS. (REF DETAIL D3/S-101)

13. CONTINUOUS TOP BARS IN BEAMS SHALL BE SPLICED AT MIDSPAN AND BOTTOM BARS OVER SUPPORTS, UNO.

14. WHERE CONSTRUCTION JOINTS ARE NOT SHOWN, OR WHEN ALTERNATE LOCATIONS ARE PROPOSED, DRAWINGS SHOWING LOCATION OF CONSTRUCTION AND CONTROL JOINTS AND PLACING SEQUENCE SHALL BE SUBMITTED FOR APPROVAL PRIOR TO PREPARATION OF THE REINFORCING STEEL SHOP DRAWINGS. (REF DETAIL D8/S-101)

CONCRETE (CONTINUED)

15. HORIZONTAL CONSTRUCTION JOINTS ARE NOT PERMITTED IN CONCRETE MEMBERS UNLESS SHOWN ON THE DRAWINGS OR APPROVED IN ADVANCE. VERTICAL CONSTRUCTION JOINTS OR BULKHEADS SHALL BE MADE AT MIDSPAN OR POINTS OF MINIMUM SHEAR.

16. PROVIDE KEYED CONSTRUCTION JOINTS (KCJ) IN EARTH OR FILL SUPPORTED SLABS AT LOCATIONS NOTED.

17. SIZE OF CONCRETE POURS BETWEEN CONSTRUCTION JOINTS SHALL BE LIMITED TO:

FOUNDATION WALLS – UNLIMITED (FROST DEPTH – NON-EXPOSED)

WALLS – MAXIMUM LENGTH 60 FT WITH INTERMEDIATE CONTROL JOINTS AT APPROXIMATELY 8 FT OR TWO TIMES THE WALL HEIGHT, WHICHEVER IS LESS. DO NOT LOCATE WITHIN 5 FT OF A CORNER OR COLUMN.

RETAINING WALLS – MAXIMUM LENGTH 60 FT WITH INTERMEDIATE CONTROL JOINTS AT APPROXIMATELY 8 FT. OR TWO TIMES THE WALL HEIGHT, WHICHEVER IS LESS. DO NOT LOCATE WITHIN 5 FT OF A CORNER OR COLUMN.

SLABS ON GRADE – 3600 SQFT WITH MAXIMUM DIMENSION OF 60 FT PLACE IN LANE OR STRIP. FASHION WITH INTERMEDIATE CONTROL JOINTS AT APPROXIMATELY 15 FT.

18. VERIFY LOCATION OF OPENINGS SHOWN THROUGH CONCRETE SLABS OR WALLS AND COORDINATE ANY ADDITIONAL REQUIRED OPENINGS WITH OTHER TRADES AND THE ARCHITECT/ENGINEER.

19. CONCRETE EXPOSED TO FREEZING AND THAWING SHALL CONTAIN 5-7% ENTRAINED AIR.

20. ALUMINUM CONDUIT OR PIPING MAY NOT BE EMBEDDED IN ANY CONCRETE.

21. CALCIUM CHLORIDE IS NOT PERMITTED IN ANY CONCRETE ADMIXTURES.

22. SUBMIT MIX DESIGN TO ENGINEER/ARCHITECT FOR APPROVAL PRIOR TO PLACING ANY CONCRETE.

23. CURE CONCRETE ACCORDING TO ACI 308.1 OR A COMBINATION OF MOISTURE CURING, COVER CURING, CURING COMPOUNDS, OR CURING & SEALING COMPOUNDS.

STEEL FRAMING

1. TO AVOID UNDESIRABLE STRESSES IN PLATES OR THEIR ANCHORS, ALL WELDS SHALL BE MADE IN SINGLE PASSES IF APPLICABLE, SYMMETRICALLY AROUND THE PLATE. WHEN MULTIPLE PASSES ARE REQUIRED SUFFICIENT TIME SHALL BE ALLOWED BETWEEN PASSES FOR THE HEAT TO DISSIPATE.

2. LATEST AISC MANUAL AND SPECIFICATIONS APPLY.

3. WELDING ELECTRODES SHALL BE 70XX, UNO.

4. ALL WELDING AND TESTING OF WELDS SHALL BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY CODES AND RECOMMENDATIONS.

5. ALL WELDING SHALL BE BY WELDERS HOLDING VALID CERTIFICATES IN THE TYPE OF WELD REQUIRED.

6. NOT ALL CONNECTIONS ARE DETAILED; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED. CONTACT THE ENGINEER OR ARCHITECT PROMPTLY TO VERIFY THE DETAILS OF MEMBERS OR CONNECTIONS IN ANY SITUATION WHERE REQUIREMENTS ARE UNCLEAR. CONTRACTOR SHALL PROVIDE THE NECESSARY BRACING DURING ERECTION AND UNTIL ALL STEEL IS PLUMB AND SECURED.

7. FIELD CUTTING OR OTHER FIELD MODIFICATIONS TO STRUCTURAL STEEL SHALL NOT BE MADE WITHOUT SPECIFIC PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.

8. STRUCTURAL STEEL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINAL BOLTED OR WELDED.

9. INSTALL EXPANSION BOLTS IN ACCORDANCE WITH THE ICC REPORT RECOMMENDATIONS.

SUPPLEMENTAL NOTES

SPECIAL INSPECTION

IBC REQUIREMENTS

THE FOLLOWING WORK ITEMS REQUIRE SPECIAL INSPECTION PER IBC SECTION 1701 AND 1704. THE SPECIAL INSPECTION AND THE COST ASSOCIATED THEREWITH WILL BE PAID BY THE OWNER. THE ITEMS THAT REQUIRE SPECIAL INSPECTIONS ARE:

A. 1704.4 CONCRETE CONSTRUCTION – REF TABLE 1704.4 FOR REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

SHEET GENERAL NOTES

A. DRAINAGE COURSE: NARROWLY GRADED MIXTURE OF WASHED CRUSHED STONE, OR CRUSHED OR UNCRUSHED GRAVEL; ASTM D 448; COARSE-AGGREGATE GRADING SIZE 57; WITH 100 PERCENT PASSING A 1-1/2-INCH (37.5-MM) SIEVE AND 0 TO 5 PERCENT PASSING A NO. 8 (2.36-MM) SIEVE.

B. ALL CONCRETE SHOWN ON S-101 PER SPEC 03 30 00

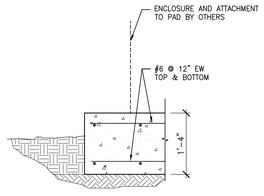
C. ALL WORK ASSOCIATED WITH INSTALLATION OF NEW DOCK IS DEDUCT ALTERNATE NO. 2 (INCLUDES ANY REMOVAL ITEMS)

D. NEW PAVEMENT AREA SHALL EXTEND BEYOND EDGE OF FOOTING A MINIMUM OF 5"-0" OR TO THE NEAREST JOINT

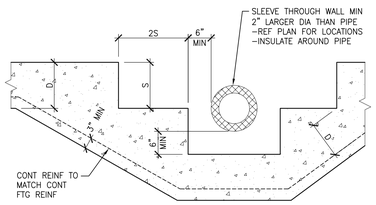
E. BASE COURSE: BASE COURSE SHALL BE IN ACCORDANCE WITH SECTION 882 OF THE SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION, "STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES", 2004 EDITION. BASE COURSE MAY CONSIST OF BLASTED AND CRUSHED LIMESTONE MATERIAL FROM THE SITE, PROVIDED THAT IT IS IN COMPLIANCE WITH THIS SPECIFICATION.

SHEET KEYNOTES

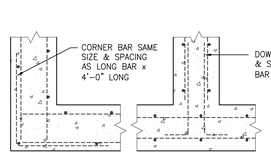
1. DOWEL NEW FND WALL TO EXISTING CONCRETE FND– REF DETAIL F9/S-101
2. NOT USED
3. NEW CONCRETE PAVEMENT ATOP EXISTING BASECOURSE– CONCRETE SECTION TO MATCH EXISTING– USE BASE COURSE IF FILLER IS REQUIRED
4. DOWEL NEW PAVEMENT TO EXISTING– USE #5X12" @ 18" OC– PROVIDE EXPANSION JOINT MATERIAL & SEALANT AT TOP



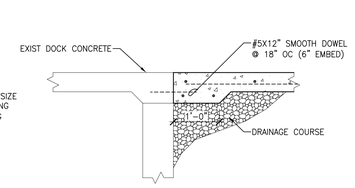
D1 MAT FOUNDATION
SCALE: 3/4" = 1'-0"



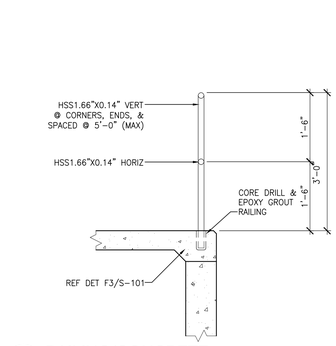
D2 TYPICAL UTILITY THRU WALL
SCALE: 3/4" = 1'-0"



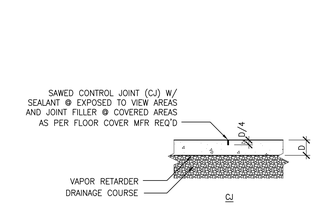
D3 TYPICAL CORNER DETAILS
SCALE: 3/4" = 1'-0"



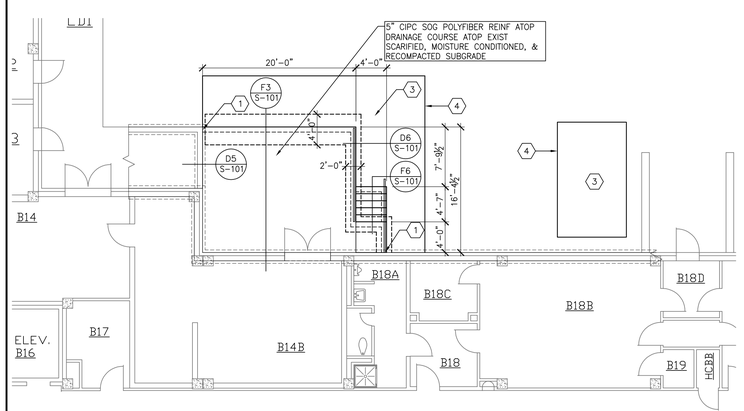
D5 NEW/EXISTING CONNECTION
SCALE: 3/4" = 1'-0"



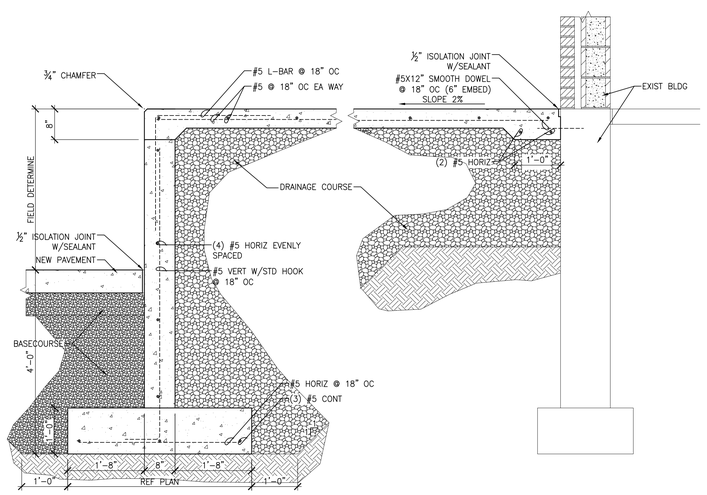
D6 RAILING/CONCRETE
SCALE: 3/4" = 1'-0"



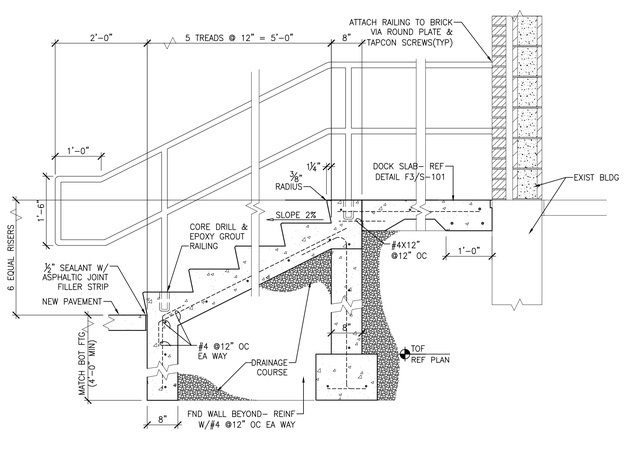
D8 TYP CONTROL/ CONSTRUCTION JOINT
SCALE: 3/4" = 1'-0"



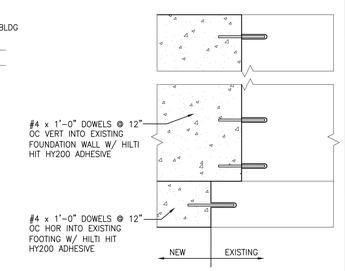
F1 DOCK FOUNDATION PLAN
SCALE: 1/8" = 1'-0"



F3 DOCK FOUNDATION
SCALE: 3/4" = 1'-0"



F6 CONC STAIR DETAIL
SCALE: 3/4" = 1'-0"



F9 FOUNDATION DOWEL DETAIL
SCALE: 3/4" = 1'-0"

Revisions	Date

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER – REG. NO. 7240 – CHRIS C. HEISER – SOUTH DAKOTA – DATE: 7/19/2013

ARCHITECT/ENGINEERS:

TSP

To Solve. To Excel. Together.

TSP, Inc.
1112 N. West Ave.
Sioux Falls, SD 57104

phone: (605) 336-1160
fax: (605) 336-7926
www.teamtsp.com
TSP PROJECT #04131190

Drawing Title: GENERAL NOTES, FOUNDATION PLANS, AND DETAILS

Approved Project Director: ---

Project Title: Relocate Generator and Upgrade Emergency Power, Building 113

Location: Ft. Meade, South Dakota

Date: 7/19/2013 | Checked: CSH | Drawn: CSH

Project Number: 568-13-101

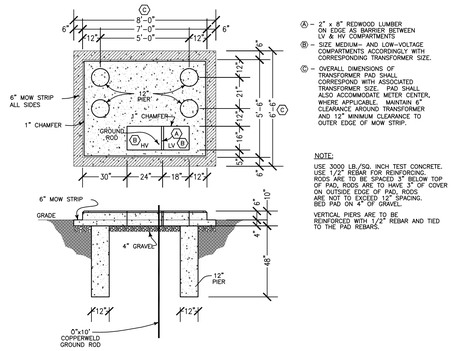
Building Number: 113

Drawing Number: S-101
Dwg. 2 of 6

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231



Ⓐ – 2" x 8" REDWOOD LUMBER ON EDGE AS BARRIER BETWEEN LV & HV COMPARTMENTS

Ⓑ – SIZE MEDIUM– AND LOW–VOLTAGE COMPARTMENTS ACCORDINGLY WITH CORRESPONDING TRANSFORMER SIZE.

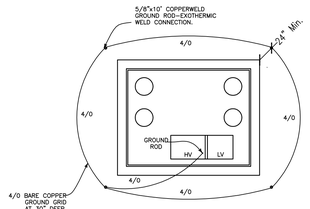
Ⓒ – OVERALL DIMENSIONS OF TRANSFORMER PAD SHALL CORRESPOND WITH ASSOCIATED TRANSFORMER SIZE. PAD SHALL ALSO ACCOMMODATE METER CENTER, WHERE APPLICABLE. MAINTAIN 6" CLEARANCE AROUND TRANSFORMER AND 12" MINIMUM CLEARANCE TO OUTER EDGE OF MOW STRIP.

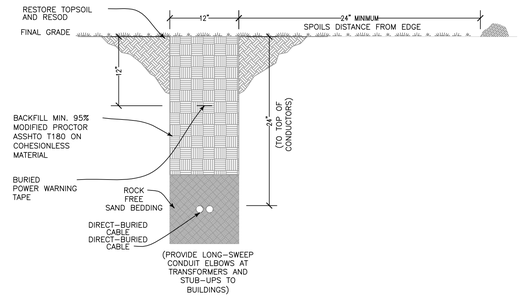
NOTE:

USE 3000 LB./SQ. INCH TEST CONCRETE. USE 1/2" REBAR FOR REINFORCING. RODS ARE TO BE SPACED 3" BELOW TOP OF PAD. RODS ARE TO HAVE 3" OF COVER ON OUTSIDE EDGE OF PAD. RODS ARE NOT TO EXCEED 12" SPACING. BED PAD ON 4" OF GRAVEL.

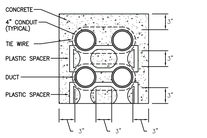
VERTICAL PIERS ARE TO BE REINFORCED WITH 1/2" REBAR AND TIED TO THE PAD REBARS.

B1 TRANSFORMER PAD DETAIL
SCALE: NONE

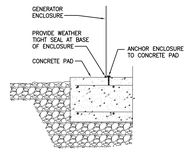




B4 SECONDARY TRENCH DETAIL
SCALE: NONE



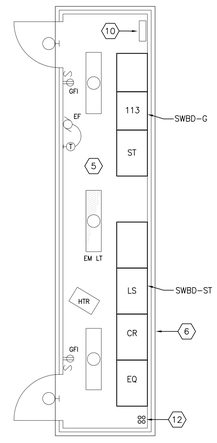
A7 DUCT BACK DETAIL
SCALE: NONE



B7 GEN. ANCHORING DETAIL
SCALE: NONE

PLAN NORTH

F1 ELECTRICAL SITE PLAN
SCALE: 1" = 30'–0"



F7 EMERGENCY SWITCHGEAR WALK-IN ENCLOSURE
SCALE: 1/4" = 1'–0"

SHEET GENERAL NOTES

A. SEE POWER RISER DIAGRAM ON SHEET E–601 FOR ADDITIONAL INFORMATION.

B. ALL FEEDERS MAY BE TRENCHED, EXCEPT UNDER ALL PAVED AREAS (DIRECT BORE UNDER PAVED AREAS). REFER TO SECONDARY TRENCH DETAIL, THIS SHEET. MULTIPLE FEEDERS MAY BE COMBINED IN A COMMON TRENCH WHEREVER PRACTICAL. CONTRACTOR TO PROVIDE AS–BUILT LOCATIONS OF FEEDERS. PROVIDE LONG SWEEP CONDUIT ELBOWS (TAR–COATED RIGID STEEL) AT TRANSFORMER LOCATIONS AND STUB–UPS TO BUILDINGS. PROVIDE DIRECT–BURY SECONDARY FEEDERS THROUGHOUT UNLESS NOTED OTHERWISE.

C. PHASING – SEE SHEET E–601.

D. ANY POWER OUTAGES ASSOCIATED WITH WORK IN THIS PROJECT SHALL BE COORDINATED WITH THE OWNER AND CONDUCTED ON "OFF" HOURS OF THE FACILITY.

SHEET KEYNOTES

1. DISCONNECT AND RELOCATE EXISTING GENERATOR AND ABOVE GROUND FUEL TANK. REMOVE EXISTING CONCRETE PADS IN THEIR ENTIRETY. PATCH CONCRETE TO MATCH EXISTING.

2. REPLACE TR–113–3 TRANSFORMER. PROVIDE A NEW PAD MOUNTED 1000KVA, 12470Y–480Y/277 VOLT QNAN TRANSFORMER. PROVIDE 2 SETS OF PRIMARY (2/0 AWG, COPPER, 3–1/C, 15KV, EPR) CABLES FROM NEW TRANSFORMER TO EXISTING SECTIONALIZING SWITCH. PROVIDE BAYONET FUSES WITH FUSE GUARD. PROVIDE SPARE FUSES INSIDE OF TRANSFORMER HOUSING.

   PROVIDE LIS (LOAD BREAK SWITCH) INTERNAL TO TRANSFORMER MENTIONED ABOVE, (GE BREAKMASTER LIS – 200A FRAME, 25KA INTERRUPTING RATING AND GE 9F60 EJO–1, 15.5KV, E–RATED, 50A TRIP/FRAME, 38KA INTERRUPTING RATING) OR EQUIVALENT. LIS SHALL BE CAPABLE OF FEEDING TRANSFORMER FROM EITHER PRIMARY FEEDER I, PRIMARY FEEDER II, OR NEITHER. LIS SHALL NOT ALLOW BOTH FEEDERS TO BE CONNECTED TO TRANSFORMER

   PROVIDE A MINIMUM 2 WEEKS NOTICE IN WRITING TO OWNER OF SHUTDOWN OF BUILDING.

3. BORE NEW EMERGENCY FEEDERS UNDER EXISTING CONCRETE PARKING LOT. ROUTE FROM NEW EMERGENCY SWITCHGEAR UNDERGROUND TO EDGE OF EXISTING BUILDING. TRANSITION TO SURFACE CONDUIT AND RUN ALONG THE OUTSIDE OF THE BUILDING TO EXISTING OPENINGS IN EXTERIOR WALL. REFERENCE DISTRIBUTION RISER DIAGRAM ON SHEET E–601 FOR CONDUIT QUANTITIES.

4. PROVIDE NEW UNDERGROUND 15KV CABLING FROM EXISTING SWITCH TO NEW TRANSFORMER. LOCATE IN DUCT BANK, REFERENCE DETAIL A7/ES101. SEE DISTRIBUTION RISER DIAGRAM ON SHEET E–601.

5. NEW SWITCHGEAR WALK–IN ENCLOSURE AND CONCRETE PAD. EMERGENCY SWITCHGEAR ENCLOSURE, PROVIDE ENCLOSURE WITH SWITCHGEAR, LOAD CENTER AND ALL INTERNAL AND EXTERNAL LIGHTS, RECEPTACLES, SWITCHES, ETC.. AS A PACKAGED UNIT WITH NEW EMERGENCY SWITCHGEAR. REFERENCE DETAIL F7/ES101, SHEET S–101 AND SPECIFICATIONS.

6. CONCRETE PAD FOR SWITCHGEAR ENCLOSURE. COORDINATE EXACT SIZE REQUIREMENTS WITH GEAR MANUFACTURER. REFERENCE SHEET S–101.

7. PROVIDE TRANSFORMER AND CONCRETE PAD, SEE DETAIL A1/ES101.

8. MODIFY EXISTING LAWN SPRINKLER SYSTEM AS REQUIRED TO ACCOMMODATE NEW SWITCHGEAR BUILDING AND NEW GENERATOR/FUEL TANK CONCRETE PAD. MOVE/MODIFY SPRINKLER HEADS AND VALVES AS NEEDED.

9. REFERENCE DISTRIBUTION RISER DIAGRAM ON SHEET E–601 FOR CONDUIT QUANTITIES.

10. LOAD CENTER FURNISHED WITH WALK–IN ENCLOSURE. PROVIDE POWER CONNECTION FROM NORMAL POWER ELECTRICAL PANEL IN GENERATOR ENCLOSURE. SEE DISTRIBUTION RISER DIAGRAM ON SHEET E–601.

11. NEW LOCATION FOR EXISTING GENERATOR AND FUEL TANK. PLACE GENERATOR AND FUEL TANK ON NEW CONCRETE PAD THEN RE–ASSEMBLE GENERATOR ENCLOSURE AROUND GENERATOR AND INSTALL NEW GEN PANEL INSIDE OF ENCLOSURE. RECONNECT FUEL LINES AND POWER FEEDS FROM GENERATOR ENCLOSURE TO FUEL TANK. REFERENCE DETAIL B7/ES101 AND SHEET S–101.

12. CONDUITS FOR PLC CABLING, REFERENCE DISTRIBUTION RISER DIAGRAM ON SHEET E–601 FOR ADDITIONAL INFORMATION.

13. PROVIDE NEW FEEDER TO NEW GEN PANEL LOCATED IN GENERATOR ENCLOSURE.

14. PROVIDE EXHAUST PIPE ON GENERATOR TO EXTEND ABOVE ENCLOSURE. EXISTING 90 CAN BE USED TO TURN UP. PROVIDE NEW SECTION TO GET ABOVE ENCLOSURE (COORDINATE RECOMMENDED HEIGHT WITH MANUFACTURER). PROVIDE RAINCAP. ORIENTATE GENERATOR SO THAT EXHAUST EXITS THE NORTH END OF THE ENCLOSURE.

15. WHERE THE GRADE IS DISTURBED, CONTRACTOR SHALL PROVIDE SOD WHERE THERE IS A LAWN SPRINKLER SYSTEM AND SEED WHERE THERE IS NO LAWN SPRINKLER SYSTEM. SEE SPECIFICATIONS.

Revisions	Date

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER — REG. NO. 6729 — DARRELL L. BREN — STATE OF SOUTH DAKOTA — DATE: 7/19/2013

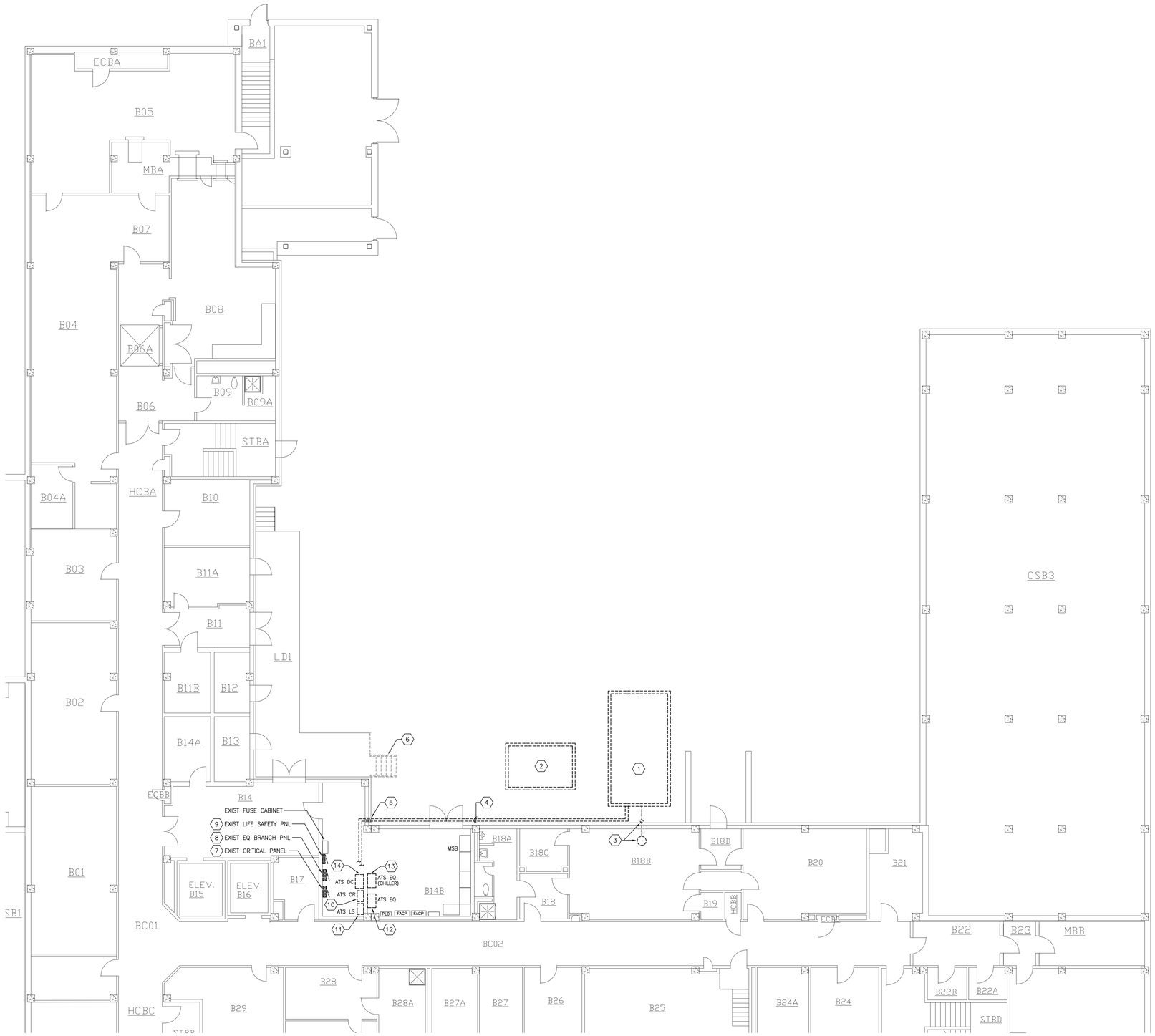
ARCHITECT/ENGINEERS:

TSP
To Solve. To Excel. Together.
TSP, Inc.
1112 N. West Ave.
Sioux Falls, SD 57104
phone: (605) 336-1160
fax: (605) 336-7926
www.teamtsp.com
TSP PROJECT #04131190

Drawing Title	ELECTRICAL SITE PLAN
Approved Project Director	---
Project Title	Relocate Generator and Upgrade Emergency Power, Building 113
Location	Ft. Meade, South Dakota
Date	7/19/2013
Checked	DLB
Drawn	KAK
Project Number	568-13-101
Building Number	113
Drawing Number	ES101
	Dwg. 3 of 6

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08–6231



F1 ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

PLAN NORTH

SHEET GENERAL NOTES

A. ALL EQUIPMENT, ETC. SHOWN IN BOLD AND DASHED ON THE PLANS SHALL BE REMOVED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED. REMOVE ALL ABANDONED HANGERS AND ACCESSIBLE CONDUITS. EXISTING ITEMS SHOWN SOLID SHALL BE MAINTAINED.

B. WHERE EQUIPMENT, ETC. ARE INDICATED TO BE REMOVED, THE BRANCH CIRCUIT/FEEDER SHALL BE REMOVED BACK TO THE NEXT JUNCTION POINT. ALL ABANDONED BRANCH CIRCUITS/FEEDERS WHICH SERVE EQUIPMENT, ETC SHALL BE REMOVED BACK TO SOURCE.

C. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO REVIEW ALL OF THE CONSTRUCTION DOCUMENTS FOR THIS PROJECT AND COOPERATE WITH ALL OTHER TRADES OR CONTRACTORS TO RESOLVE ANY CONFLICTS.

D. EXISTING CONDUIT, BOXES, SUPPORT MEMBERS, ETC THAT REQUIRE MODIFICATIONS OR RELOCATION FOR INSTALLATION OF NEW CONDUITS, ETC SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

E. PHASING – SEE SHEET E–601.

SHEET KEYNOTES

1. DISCONNECT AND RELOCATE EXISTING GENERATOR. REMOVE EXISTING CONCRETE PAD IN IT'S ENTIRETY. PATCH/REPLACE WITH NEW CONCRETE TO MATCH EXISTING.
2. DISCONNECT AND RELOCATE EXISTING GENERATOR FUEL TANK. REMOVE EXISTING CONCRETE PAD IN IT'S ENTIRETY. PATCH/REPLACE WITH NEW CONCRETE TO MATCH EXISTING.
3. UNDER DEDUCT ALTERNATE NO. 1, DISCONNECT AND REMOVE EXISTING GENERATOR EXHAUST PIPE, ROOF MOUNTED BOOSTER FAN AND ROOF CURB. REPAIR ROOF AS REQUIRED.
4. DISCONNECT AND REMOVE EXISTING SURFACE MOUNTED CONDUITS AND ASSOCIATED CONDUCTORS BACK TO BUILDING ENTRANCE. PATCH WALL TO MATCH AT OPENINGS AND SUPPORTS.
5. EXISTING OPENINGS IN SIDE OF BUILDING, SEAL/PATCH AS NEEDED.
6. REMOVE EXISTING CONCRETE STAIR AND ASSOCIATED RAILING. INCLUDE COST FOR REMOVAL UNDER DEDUCT ALTERNATE #2.
7. DISCONNECT AND REMOVE EXISTING PANEL "CRIT" AFTER INSTALLATION OF NEW PANEL "CR" IS COMPLETE AND ALL LOADS HAVE BEEN TRANSFERRED TO NEW PANEL.
8. DISCONNECT AND REMOVE EXISTING PANEL "EQ" AFTER INSTALLATION OF NEW PANEL "EQ" IS COMPLETE AND ALL LOADS HAVE BEEN TRANSFERRED TO NEW PANEL.
9. DISCONNECT AND REMOVE EXISTING PANEL "LS" AFTER INSTALLATION OF NEW PANEL "LS" IS COMPLETE AND ALL LOADS HAVE BEEN TRANSFERRED TO NEW PANEL.
10. DISCONNECT AND REMOVE EXISTING ATS "CR". EXTEND EXISTING NORMAL POWER FEED TO NEW LOCATION OF ATS. SEE SHEET EP101 FOR LOCATION. INCLUDE COST FOR NEW ATS UNDER DEDUCT ALTERNATE #1.
11. DISCONNECT AND REMOVE EXISTING ATS "LS". EXTEND EXISTING NORMAL POWER FEED TO NEW LOCATION OF ATS. SEE SHEET EP101 FOR LOCATION. INCLUDE COST FOR NEW ATS UNDER DEDUCT ALTERNATE #1.
12. DISCONNECT AND REMOVE EXISTING ATS "EQ". EXTEND EXISTING NORMAL POWER FEED TO NEW LOCATION OF ATS. SEE SHEET EP101 FOR LOCATION. INCLUDE COST FOR NEW ATS UNDER DEDUCT ALTERNATE #1.
13. DISCONNECT AND REMOVE EXISTING ATS "EQ CHILLER". INCLUDE RELOCATING EX ATS EQ CHILLER (AND EXTEND FEEDERS) TO NEW LOCATION SHOWN ON SHEET EP101 UNDER DEDUCT ALTERNATE #1. INCLUDE COST FOR NEW ATS UNDER DEDUCT ALTERNATE #3.
14. RELOCATE EX ATS DC (AND EXTEND FEEDERS) TO NEW LOCATION SHOWN ON SHEET EP101 UNDER DEDUCT ALTERNATE #1.

Revisions:	Date

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 6729
DARRELL L. BREN
DATE: 7/19/2013

ARCHITECT/ENGINEERS:

TSP, Inc.
1112 N. West Ave.
Sioux Falls, SD 57104
phone: (605) 336-1160
fax: (605) 336-7926
www.teamtsp.com
TSP PROJECT #04131190
To Solve. To Excel. Together.

Drawing Title: ELECTRICAL DEMOLITION PLAN
Approved Project Director: ---
Project Title: Relocate Generator and Upgrade Emergency Power, Building 113
Location: Ft. Meade, South Dakota
Date: 7/19/2013
Checked: DLB
Drawn: KAK
Project Number: 568-13-101
Building Number: 113
Drawing Number: ED101
Dwg. 4 of 6

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

F1 ELECTRICAL FLOOR PLAN
SCALE: 1/8" = 1'-0"

PLAN NORTH

SHEET GENERAL NOTES

A. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL SLEEVES AND/OR OPENINGS WHERE REQUIRED FOR PASSAGE OF ELECTRICAL WORK THROUGH FLOOR SLABS, WALLS, AND BRIDGING, EXCEPT WHERE OTHERWISE NOTED.

B. ALL DEVICES, EQUIPMENT, ETC SHOWN IN BOLD ARE NEW AND SHALL BE FURNISHED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.

C. PHASING – SEE SHEET E–601.

D. ANY POWER OUTAGES ASSOCIATED WITH WORK IN THIS PROJECT SHALL BE COORDINATED WITH THE OWNER AND CONDUCTED ON "OFF" HOURS OF THE FACILITY.

SHEET KEYNOTES

1. BORE NEW FEEDERS UNDERGROUND FROM CORNER OF EXISTING BUILDING #113 OUT TO NEW LOCATION FOR GENERATOR SWITCHGEAR BUILDING. SEE ES101 FOR LOCATIONS.
2. TRANSFORMER TR 113 EM SWBD TO BE WALL MOUNTED UNDER BASE BID. MOUNT ON PAD ON DOCK UNDER DEDUCT ALTERNATE NO. 2.
3. NEW LOADING DOCK. (DEDUCT ALTERNATE NO. 2), SEE SHEET S–101.
4. UNDER DEDUCT ALTERNATE NO. 1 AND NO. 3, PROVIDE NEW ATS AS INDICATED ON RISER DIAGRAM AND RELOCATE ALL ATS AS SHOWN. COORDINATE EXACT LOCATION WITH VA. UNDER BASE BID, ATS(S) STAY AS SHOWN ON ED101.
5. PROVIDE 3/4" CONDUIT FROM PLC BOX TO EACH ATS (TYPICAL OF FIVE).
6. CORE DRILL NEW HOLES IN EXISTING WALL FOR ROUTING OF NEW RACEWAYS. COORDINATE EXACT LOCATION WITH OWNER.

Revisions	Date

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 6729
DARRELL L. BREN
DATE: 7/19/2013

ARCHITECT/ENGINEERS:

TSP, Inc.
1112 N. West Ave.
Sioux Falls, SD 57104
phone: (605) 336-1160
fax: (605) 336-7926
www.teamtsp.com
TSP PROJECT #04131190
To Solve. To Excel. Together.

Drawing Title: ELECTRICAL FLOOR PLAN

Approved Project Director: ---

Project Title: Relocate Generator and Upgrade Emergency Power, Building 113

Location: Ft. Meade, South Dakota

Date: 7/19/2013 | Checked: DLB | Drawn: KAK

Project Number: 568-13-101

Building Number: 113

Drawing Number: E–101

Dwg. 5 of 6

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08–6231

PANEL TAG: SWBD–G
MOUNTING: FLOOR
PANEL TYPE: SWITCHBOARD
VOLTAGE: 480 VOLTS, 3–PHASE, 4–WIRE
MAIN AND VERTICAL BUS RATINGS AMPS: 800
MIN A.I.C.: 14000 (A)

CKT	ITEM OR AREA SERVED	DIST KVA	CIRCUIT BREAKER FRAME SIZE	# POLES	TRIP SETTING	REMARKS
1	MCB	0.0	800	3	600	
2	113	0.0	(VERTICAL BARRIER)			MOTORIZED SINGLE C/B FOR GEN
2A		0.0	800	3	600	
3	ST	0.0	(VERTICAL BARRIER)			MOTORIZED SINGLE C/B FOR FUTURE
3A		0.0	800	3	600	
		0.0				

TOTAL CONNECTED LOAD (KVA) 0.0
TOTAL DEMAND LOAD (KVA) 0.0
FEEDER AMPERES DEMAND 0.0

ALL BRANCH BREAKERS SHALL BE ELECTRONIC LSI TRIP

PANEL TAG: SWBD–ST
MOUNTING: FLOOR
PANEL TYPE: SWITCHBOARD
VOLTAGE: 480 VOLTS, 3–PHASE, 4–WIRE
MAIN AND VERTICAL BUS RATINGS AMPS: 800
MIN A.I.C.: 14000 (A)

CKT	ITEM OR AREA SERVED	DIST KVA	CIRCUIT BREAKER FRAME SIZE	# POLES	TRIP SETTING	REMARKS
1	MLO	0.0				
1A	MLO LUGS	0.0	800	3	600	
2	LIFE SAFETY	0.0	(VERTICAL BARRIER)			
2A	SPARE	0.0	250	3	150	SECTION: LS PROVIDE VERTICAL BARRIERS AND METERING FOR THIS SECTION
2B	SPARE SPACE	0.0	400	3		
2C	SPARE SPACE	0.0	200	3		
2D	SPARE SPACE	0.0	200	3		
3	CRITICAL	0.0	(VERTICAL BARRIER)			
3A	SPARE	0.0	800	3	400	SECTION: CR PROVIDE VERTICAL BARRIERS AND METERING FOR THIS SECTION
3B	SPARE SPACE	0.0	400	3		
3C	SPARE SPACE	0.0	200	3		
3D	SPARE SPACE	0.0	200	3		
4	EQUIPMENT BRANCH	0.0	(VERTICAL BARRIER)			
4A	SPARE	0.0	800	3	600	SECTION: EQ PROVIDE VERTICAL BARRIERS AND METERING FOR THIS SECTION
4B	SPARE SPACE	0.0	400	3		
4C	SPARE SPACE	0.0	200	3		
4D	SPARE SPACE	0.0	200	3		

TOTAL CONNECTED LOAD (KVA) 0.0
TOTAL DEMAND LOAD (KVA) 0.0
FEEDER AMPERES DEMAND 0.0

ALL BRANCH BREAKERS SHALL BE ELECTRONIC LSI TRIP

PANEL TAG: 113 EM SWBD
MOUNTING: FLOOR
PANEL TYPE: SWITCHBOARD
VOLTAGE: 208 VOLTS, 3–PHASE, 4–WIRE
MAIN AND VERTICAL BUS RATINGS AMPS: 1200
MIN A.I.C.: 10000 (A)

CKT	ITEM OR AREA SERVED	DIST KVA	CIRCUIT BREAKER FRAME SIZE	# POLES	TRIP SETTING	REMARKS
1	MLO	0.0				
1A	MLO LUGS	0.0	1200	3	1200	
2	EM - EMERGENCY BRANCH	0.0	(VERTICAL BARRIER)			
2A	ATS–CR	0.0	800	3	600	
2B	ATS–LS	0.0	400	3	200	SECTION: EM PROVIDE VERTICAL BARRIERS AND METERING FOR THIS SECTION
2C	ATS–DC	0.0	400	3	200	
2D	SPARE SPACE	0.0	400	3		
2E	SPARE SPACE	0.0	400	3		
2F	SPARE SPACE	0.0	200	3		
2G	SPARE SPACE	0.0	200	3		
3	EQ - LEGALLY REQUIRED	0.0	(VERTICAL BARRIER)			
3A	ATS–EQ	0.0	1200	3	800	SECTION: EQ PROVIDE VERTICAL BARRIERS AND METERING FOR THIS SECTION
3B	ATS–EQ CHILLER	0.0	800	3	400	
3C	SPARE SPACE	0.0	400	3		
3D	SPARE SPACE	0.0	200	3		
3E	SPARE SPACE	0.0	200	3		

TOTAL CONNECTED LOAD (KVA) 0.0
TOTAL DEMAND LOAD (KVA) 0.0
FEEDER AMPERES DEMAND 0.0

ALL BRANCH BREAKERS SHALL BE ELECTRONIC LSI TRIP

PANEL TAG: CR
MOUNTING: SURFACE
PANEL TYPE: DISTRIBUTION
VOLTAGE: 120/208 VOLTS, 3-PHASE, 4-WIRE
MAIN BUS RATING AMPS: 600
MIN A.I.C.: PER COORD STUDY (A)

CKT	ITEM OR AREA SERVED	DIST KVA	CIRCUIT BREAKER FRAME SIZE	# POLES	TRIP SETTING	REMARKS
MAIN		0.0				
1	PANEL E102	28.0	250	3	100	
2	PANEL E103	28.0	250	3	100	
3	PANEL E104	28.0	250	3	100	
4	PANEL 2CCI	56.0	400	3	200	
5	PANEL 2NCI	56.0	400	3	200	
6	PANEL E107 ICU	36.0	250	3	125	
7	MRIL	28.0	250	3	100	
8	PANEL ISCI	20.0	100	3	70	
9	B30 UNIT DOSE	17.0	100	3	60	
10	BLOOD BANK	2.9	100	1	30	
11	EXISTING LOAD	1.9	100	1	20	
12	SPACE	0.0	400	3		
13	SPACE	0.0	200	3		
14	SPACE	0.0	100	3		
15	SPACE	0.0	100	3		

TOTAL CONNECTED LOAD (KVA) 301.8
TOTAL DEMAND LOAD (KVA) 301.8
FEEDER AMPERES DEMAND 837.7

PANEL TAG: EQ
MOUNTING: SURFACE
PANEL TYPE: DISTRIBUTION
VOLTAGE: 120/208 VOLTS, 3-PHASE, 4-WIRE
MAIN BUS RATING AMPS: 800
MIN A.I.C.: PER COORD STUDY (A)

CKT	ITEM OR AREA SERVED	DIST KVA	CIRCUIT BREAKER FRAME SIZE	# POLES	TRIP SETTING	REMARKS
MAIN		0.0				
1	MCC M100 / ICU	115.0	600	3	400	
2	MCC-301	115.0	600	3	400	
3	PMCC	86.0	600	3	300	
4	VAC PUMP BLDG 113	28.0	250	3	100	
5	BE09 BE07	20.0	100	3	70	
6	ATC COMPRESSOR	20.0	100	3	70	
7	BE09 / BE07	20.0	100	3	70	
8	SPARE	20.0	100	3	70	
9	SPACE	0.0	400	3		
10	SPACE	0.0	400	3		
11	SPACE	0.0	200	3		
12	SPACE	0.0	200	3		

TOTAL CONNECTED LOAD (KVA) 424.0
TOTAL DEMAND LOAD (KVA) 424.0
FEEDER AMPERES DEMAND 1176.9

PANEL TAG: GEN
MOUNTING: SURFACE
FEEDER: (SEE RISER DIAGRAM)
PANEL TYPE: LTG & APPLIANCE
VOLTAGE: 120/208 VAC, 3-PHASE, 4-WIRE
MAINS: LUG [ ] C.B. [X] AMPS: 100
FEED THRU LUG [ ]
MIN A.I.C.: PER COORD STUDY (A)

CKT	ITEM OR AREA SERVED	O/C PROT	DIST KVA	P	DIST KVA	O/C PROT	ITEM OR AREA SERVED	CKT
1	UNIT HEATER	20/2	1.6	A	1.6	20/1	LIGHTS	2
3			1.6	B	1.6	20/1	OUTLETS	4
5			0.0	C	1.6	20/1	NEW HEAT RACE	6
7	EM SWBD ENCLOSURE	60/3	5.7	A	1.6	20/2	BATTERY CHARGER HEATER (WATER)	8
9			0.0	B	1.6			10
11	SPARE	20/1	0.0	C	1.6	20/1	AIR FLOW LOUVERS	12
13	UPS OUTLET	20/1	1.6	A	0.0	-	SPACE	14
15			1.1	B	0.0	-	SPACE	16
17	POWER MONITOR	20/3	1.1	C	1.5	15/1	DAY TANK PUMP 1	18
19			1.1	A	1.5	15/1	DAY TANK PUMP 2	20
21	SPARE	20/1	0.0	B	0.4	15/1	CONTROL POWER	22
23	SPARE	20/1	0.0	C	0.0	-	SPACE	24
25	SPARE	20/1	0.0	A	0.0	-	SPACE	26
27	SPACE	-	0.0	B	0.0	-	SPACE	28
29	SPACE	-	0.0	C	0.0	-	SPACE	30

TOTAL CONNECTED LOAD (KVA) 26.8
TOTAL DEMAND LOAD (KVA) 27.3
FEEDER AMPERES DEMAND 75.7

PANEL TAG: LS
MOUNTING: SURFACE
FEEDER: (SEE RISER DIAGRAM)
PANEL TYPE: LTG & APPLIANCE
VOLTAGE: 120/208 VAC, 3-PHASE, 4-WIRE
MAINS: LUG [ ] C.B. [ ] AMPS: 225
FEED THRU LUG [ ]
MIN A.I.C.: PER COORD STUDY (A)

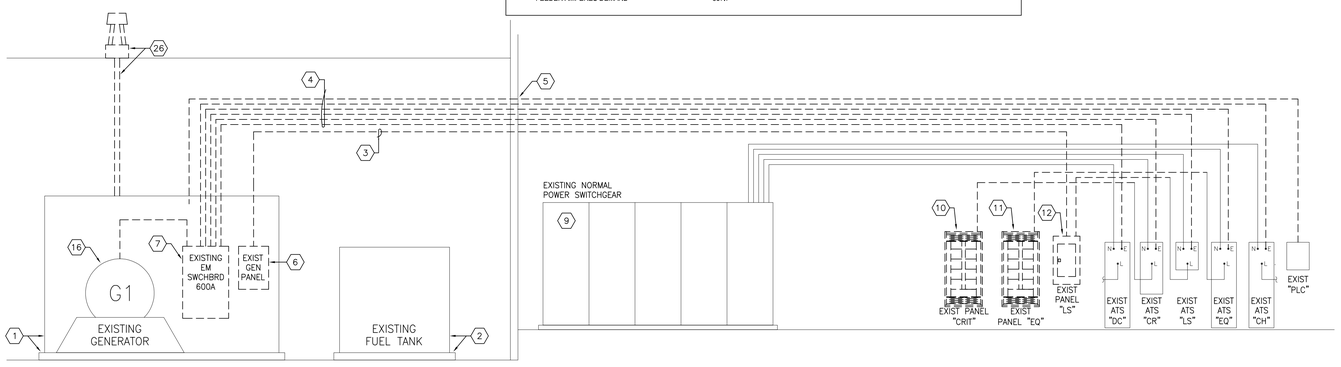
CKT	ITEM OR AREA SERVED	O/C PROT	DIST KVA	P	DIST KVA	O/C PROT	ITEM OR AREA SERVED	CKT
1			0.0	A	0.0			2
3	GEN PANEL	100/3	28.0	B	28.0	100/3	PANEL ISLS	4
5			0.0	C	0.0			6
7	UNIT HEATER	30/2	2.5	A	1.9	20/1	ELEVATOR	8
9			2.5	B	1.9	20/1	EXISTING LOAD	10
11	DOOR SECURITY	20/1	1.9	C	1.9	20/1	DUCT DAMPERS	12
13	ATC AIR DRYER	30/1	2.8	A	0.0			14
15	FUEL MONITORS	20/1	1.9	B	0.0	60/3	SPARE (ICLS PANEL)	16
17	GEN PLC	20/1	1.9	C	0.0			18
19	EM LTS B20, B27-B29	20/1	1.9	A	1.9	20/1	F.A. PANEL	20
21	CRIT LTS	20/1	1.9	B	0.0	-	SPACE	22
23	DAY DOSE	20/1	1.9	C	1.9	20/1	EXISTING LOAD	24
25	B02 N. RECEP.	30/1	2.8	A	1.9	20/1	PHARM	26
27	PHONE BOARD TB113A	20/1	1.9	B	1.9	20/1	PHARM POWER POLE	28
29			2.8	C	1.9	20/1	PHARM STOR REFRIG	30
31	2CLS	30/3	2.8	A	1.9	20/1	EXISTING LOAD	32
33			2.8	B	1.9	20/1	ICU HALL LTS & STAIRWELLS	34
35	SPACE	-	0.0	C	1.9	20/1	ICU MED GAS ALARM PANEL	36
37	SPACE	-	0.0	A	0.0	-	SPACE	38
39	SPACE	-	0.0	B	0.0	-	SPACE	40
41	SPACE	-	0.0	C	0.0	-	SPACE	42

TOTAL CONNECTED LOAD (KVA) 109.2
TOTAL DEMAND LOAD (KVA) 110.6
FEEDER AMPERES DEMAND 307.1

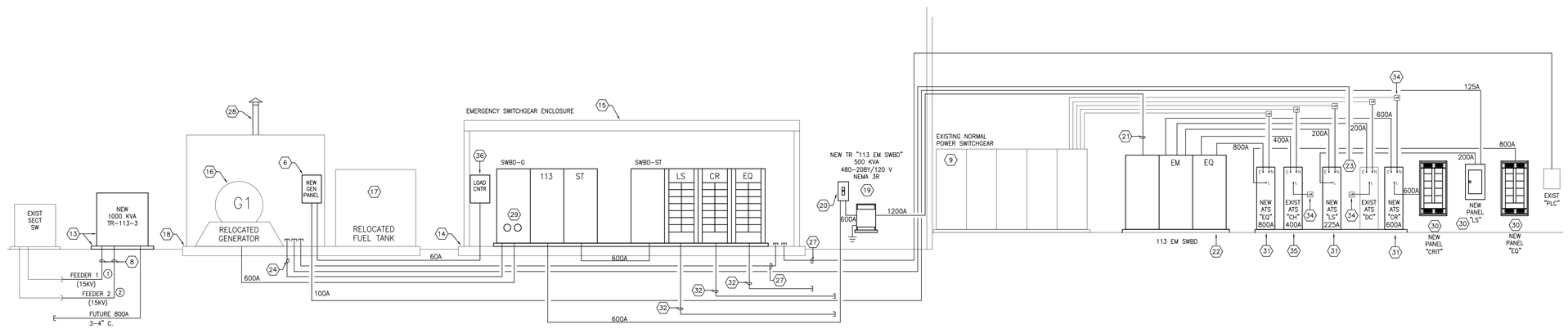
CIRCUIT SCHEDULE

MARK (AMPACITY)	4–WIRE (W/NEUTRAL) PH/N–GND–C	3–WIRE (NO NEUTRAL) PH–GND–C	SEPARATELY DERIVED PH/N–GND–C
15	12–12–3/4"	12–12–3/4"	12–8–3/4"
20	12–12–3/4"	12–12–3/4"	12–8–3/4"
25	10–10–3/4"	10–10–3/4"	10–8–3/4"
30	10–10–3/4"	10–10–3/4"	10–8–3/4"
35	8–10–1"	8–10–3/4"	8–8–1"
40	8–10–1"	8–10–3/4"	8–8–1"
45	6–10–1 1/4"	6–10–1"	6–8–1 1/4"
50	6–10–1 1/4"	6–10–1"	6–8–1 1/4"
60	6–10–1 1/4"	6–10–1"	6–8–1 1/4"
70	4–8–1 1/2"	4–8–1 1/4"	4–8–1 1/2"
80	3–8–1 1/2"	3–8–1 1/2"	3–8–1 1/2"
90	3–8–1 1/2"	3–8–1 1/2"	3–8–1 1/2"
100	2–8–1 1/2"	2–8–1 1/2"	2–8–1 1/2"
110	2–6–1 1/2"	2–6–1 1/2"	2–6–1 1/2"
125	1–6–2"	1–6–1 1/2"	1–6–2"
150	1/0–6–2"	1/0–6–2"	1/0–6–2"
175	2/0–6–2"	2/0–6–2"	2/0–4–2"
200	3/0–6–2 1/2"	3/0–6–2"	3/0–4–2 1/2"
225	4/0–4–2 1/2"	4/0–4–2 1/2"	4/0–2–2 1/2"
250	250 KCMIL–4–3"	250 KCMIL–4–2 1/2"	250 KCMIL–2–3"
300	350 KCMIL–4–3"	350 KCMIL–4–3"	350 KCMIL–2–3"
350	500 KCMIL–3–3 1/2"	500 KCMIL–3–3"	500 KCMIL–1/0–3 1/2"
400	600 KCMIL–3–4"	600 KCMIL–3–3 1/2"	600 KCMIL–3–4"
400	(2) 3/0–3–2 1/2"	(2) 3/0–3–2"	(2) 3/0–1/0–2 1/2"
450	(2) 4/0–2–2 1/2"	(2) 4/0–2–2 1/2"	(2) 4/0–1/0–3"
500	(2) 250 KCMIL–2–3"	(2) 250 KCMIL–2–2 1/2"	(2) 250 KCMIL–1/0–3"
600	(2) 350 KCMIL–1–3"	(2) 350 KCMIL–1–3"	(2) 350 KCMIL–2/0–3"
700	(2) 500 KCMIL–1/0–3 1/2"	(2) 500 KCMIL–1/0–3"	(2) 500 KCMIL–2/0–3 1/2"
800	(3) 300 KCMIL–1/0–3"	(3) 300 KCMIL–1/0–2 1/2"	(3) 300 KCMIL–2/0–3"
1000	(4) 300 KCMIL–2/0–3"	(4) 300 KCMIL–2/0–2 1/2"	(4) 300 KCMIL–3/0–3 1/2"
1000	(3) 500 KCMIL–2/0–3 1/2"	(3) 500 KCMIL–2/0–3"	(3) 500 KCMIL–2/0–3"
1200	(4) 500 KCMIL–3/0–3 1/2"	(4) 500 KCMIL–3/0–3"	(4) 500 KCMIL–4/0–3 1/2"
1600	(5) 500 KCMIL–4/0–3 1/2"	(5) 500 KCMIL–4/0–3"	(5) 500 KCMIL–250–3 1/2"
2000	(6) 500 KCMIL–250 KCMIL–3 1/2"	(6) 500 KCMIL–250 KCMIL–3"	(6) 500 KCMIL–3/0–3 1/2"
2500	(8) 500 KCMIL–350 KCMIL–3 1/2"	(8) 500 KCMIL–350 KCMIL–3"	(8) 500 KCMIL–3/0–3 1/2"
2500	(7) 600 KCMIL–350 KCMIL–4"	(7) 600 KCMIL–350 KCMIL–3 1/2"	(7) 600 KCMIL–3/0–4"
3000	(9) 500 KCMIL–500 KCMIL–3 1/2"	(9) 500 KCMIL–500 KCMIL–3"	(9) 500 KCMIL–3/0–3 1/2"
3000	(8) 600 KCMIL–500 KCMIL–4"	(8) 600 KCMIL–500 KCMIL–3 1/2"	(8) 600 KCMIL–3/0–4"

MISCELLANEOUS NOTES:
1. ALL CIRCUITS (BRANCH, FEEDERS) SHALL BE SIZED PER THE OVERCURRENT DEVICE AND THIS SCHEDULE UNLESS OTHERWISE NOTED. THE CHART IS THE MINIMUM CONDUCTOR AND CONDUIT SIZE FOR THE OVERCURRENT DEVICE. CHART DOES NOT INCLUDE REQUIRED VOLTAGE DROP.
2. CIRCUITS SHALL BE 4 WIRE UNLESS DENOTED WITH "3W" (3 WIRE).
3. ALL BRANCH CIRCUITS AND FEEDERS SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR.
4. ALL CONDUCTORS SHALL BE COPPER.
5. THE NEUTRAL SHALL BE THE SAME SIZE AS THE PHASE CONDUCTORS UNLESS K RATED, 3–WIRE, OR NOTED OTHERWISE.
6. THE NUMBER OF PARALLEL SETS IS INDICATED IN PARENTHESIS.
7. SINGLE PHASE CIRCUITS SHALL BE SIZED PER THE OVERCURRENT DEVICE UNLESS OTHERWISE NOTED. SIZE THE CONDUCTORS AND CONDUIT PER THE 4–WIRE COLUMN OF THIS CHART BUT REDUCE THE AMOUNT OF PHASE CONDUCTORS AS REQUIRED.



D1 DISTRIBUTION RISER DIAGRAM - DEMOLITION
SCALE: NONE



F1 DISTRIBUTION RISER DIAGRAM - NEW
SCALE: NONE

SHEET KEYNOTES

1. DISCONNECT AND RELOCATE EXISTING GENERATOR. REMOVE EXISTING CONCRETE PAD IN IT'S ENTIRETY.
2. DISCONNECT AND RELOCATE EXISTING GENERATOR FUEL TANK. REMOVE EXISTING CONCRETE PAD IN IT'S ENTIRETY.
3. DISCONNECT AND REMOVE EXISTING GENERATOR PANEL CONDUIT AND CONDUCTORS IN THEIR ENTIRETY.
4. DISCONNECT AND REMOVE EXISTING SURFACE MOUNTED CONDUITS, ASSOCIATED CONDUCTORS AND MOUNTING BRACKETS BACK TO BUILDING ENTRANCE. PATCH EXTERIOR WALL TO MATCH.
5. PATCH OPENINGS INTO BUILDING WHERE CONDUITS ENTER ELECTRICAL ROOM.
6. REPLACE GENERATOR 120V PANEL (SEE NEW SCHEDULE). PROVIDE NEW 100A CONDUCTORS IN RACEWAY FROM PANEL BACK TO NEW PANEL "LS" LOCATED IN BUILDING 113 ELECTRICAL ROOM. RECONNECT EXISTING CIRCUITS IN GENERATOR HOUSING TO NEW PANEL.
7. DISCONNECT AND REMOVE EXISTING GENERATOR DISTRIBUTION PANEL FROM INSIDE OF GENERATOR ENCLOSURE.
8. PROVIDE 4" CONDUITS ENCASED IN CONCRETE AND CONNECT TO EXISTING DUCT BACK STUBBED OUT OF SECTIONALIZING SWITCH, SEE DETAIL A7 ON SHEET ES101 FOR DUCT BANK. PROVIDE 15KV CABLING FROM TRANSFORMER TO EXISTING SECTIONALIZING SWITCH.
9. EXISTING NORMAL POWER SWITCHBOARD TO REMAIN AS IS. EXTEND FEEDERS TO NEW ATS LOCATIONS.
10. DISCONNECT AND REMOVE EXISTING PANEL "CRIT" AFTER INSTALLATION OF NEW PANEL "CRIT" IS COMPLETE AND ALL LOADS HAVE BEEN TRANSFERRED TO NEW PANEL.
11. DISCONNECT AND REMOVE EXISTING PANEL "EQ" AFTER INSTALLATION OF NEW PANEL "EQ" IS COMPLETE AND ALL LOADS HAVE BEEN TRANSFERRED TO NEW PANEL.
12. DISCONNECT AND REMOVE EXISTING PANEL "LS" AFTER INSTALLATION OF NEW PANEL "LS" IS COMPLETE AND ALL LOADS HAVE BEEN TRANSFERRED TO NEW PANEL.
13. NEW HIGH VOLTAGE TRANSFORMER AND PAD, SEE SHEET ES101 FOR ADDITIONAL INFORMATION.
14. PROVIDE NEW CONCRETE PAD, SIZE PER SWITCHGEAR MANUFACTURER'S RECOMMENDATIONS.
15. NEW EMERGENCY SWITCHGEAR ENCLOSURE, SEE SHEET ES101 FOR ADDITIONAL INFORMATION.
16. CONVERT EXISTING GENERATOR OUTPUT FROM 208 VOLT 3 PHASE TO 480 VOLT 3 PHASE.
17. RELOCATE EXISTING ABOVE GROUND FUEL TANK. LOCATE ON SAME PAD AS RELOCATED GENERATOR. PROVIDE NEW FUEL PIPING AND CONTROL CABLING TO GENERATOR.
18. PROVIDE NEW CONCRETE PAD FOR GENERATOR AND FUEL TANK.
19. NEW TRANSFORMER. WALL MOUNT TRANSFORMER UNDER BASE BID. PROVIDE PAD MOUNT (WITH HOUSEKEEPING PAD) UNDER DEDUCT ALTERNATE NO 2. GROUND PER NEC.
20. PROVIDE A 600A/3P, 480V CIRCUIT BREAKER IN A NEMA 3R ENCLOSURE.
21. TERMINATE WITHIN 10 FEET PER NEC.
22. PROVIDE NEW 113 EM SWBD WITH PAD.
23. PROVIDE TWO INCH CONDUIT FOR GENERATOR/ATS CONTROLS TO MAIN ELECTRICAL ROOM.
24. PROVIDE TWO INCH CONDUIT TO SWITCHGEAR ENCLOSURE FOR GENERATOR CONTROLS AND INTERLOCKING TO BREAKERS.
25. NOT USED.
26. UNDER DEDUCT ALTERNATE NO. 1, DISCONNECT AND REMOVE EXISTING GENERATOR EXHAUST PIPE, ROOF MOUNTED BLOWER AND ROOF CURB. REPAIR ROOF AS REQUIRED.
27. PROVIDE TWO 1 1/4" CONDUITS FROM SWITCHGEAR BUILDING TO GENERATOR ENCLOSURE AND THEN FROM ENCLOSURE TO EXISTING "PLC" LOCATED IN BUILDING #113 FOR OWNER FURNISHED MONITOR CABLING.
28. PROVIDE NEW GENERATOR EXHAUST PIPING WITH RAIN CAP.
29. PROVIDE TWO 4 INCH CONDUITS FOR ACCESS/RACEWAYS FOR TEMPORARY GENERATOR. CAP AND SEAL (FOR FUTURE USE) AFTER PERMANENT GENERATOR IS RECONNECTED.
30. RECONNECT EXISTING CIRCUITS TO NEW PANEL. EXTEND CONDUCTORS AS REQUIRED.
31. UNDER DEDUCT ALTERNATE NO 1, PROVIDE NEW ATS.
32. PROVIDE THREE 3 1/2" CONDUITS STUBBED OUT OF BUILDING 5' TO WEST FROM SWITCHGEAR SECTION SHOWN FOR FUTURE USE.
33. NOT USED.
34. UNDER DEDUCT ALTERNATE NO. 1, ALL ATS(S) SHALL BE RELOCATED AS SHOWN ON E–101. PROVIDE PAD AND FLOOR MOUNTED ATS(S). PROVIDE A JUNCTION BOX FOR INTERCEPTING EXISTING CONDUCTORS FEEDING ATS(S) AND PROVIDE NEW CONDUCTORS TO ACCOMMODATE LOCATIONS OF NEW ATS(S). EXTEND CONDUCTORS AS NEEDED. TYPICAL FOR ALL FEEDERS TO ATS(S).
35. UNDER DEDUCT ALTERNATE NO 3, PROVIDE NEW ATS.
36. LOADCENTER FURNISHED IN SWITCHGEAR ENCLOSURE.

PHASING / SEQUENCING

1. INSTALL NEW EMERGENCY SWITCHGEAR (HOUSING), FEEDERS. TRANSFORMER/BREAKERS/113 EM SWBD, AND INSTALL GEN/FUEL TANK PAD. DOCK WILL NEED TO BE BUILT FOR TRANSFORMER IF DEDUCT ALTERNATE NO.2 IS ACCEPTED.
2. PROVIDE TEMPORARY GENERATOR FEEDING NEW EMERGENCY SWITCHGEAR (SWBD–G). MODIFY ATS FEEDERS FROM EXISTING SYSTEM TO NEW – ONE AT A TIME AND AT COORDINATED TIMES WITH OWNER (PLAN FOR OFF TIME BUSINESS HOURS). ATS(S) MOVE TO FLOOR MOUNTED IN DEDUCT ALTERNATE NO.1. TEMPORARY FEEDERS TO EXISTING PANELBOARDS WILL BE REQUIRED.
3. RELOCATE GENERATOR AND FUEL TANK.
4. REPLACE PANELS CRIT, LA, AND EQ. SEE SHEET E–101 FOR SEQUENCING OF PANEL REPLACEMENT.

Revisions	Date

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER REG. NO. 6729 DARRELL L BREN SOUTH DAKOTA
DATE: 7/9/2013

ARCHITECT/ENGINEERS:
TSP, Inc.
1112 N. West Ave.
Sioux Falls, SD 57104
phone: (605) 336-1160
fax: (605) 336-7926
www.teamtsp.com
TSP PROJECT #04131190
To Solve. To Excel. Together.

Drawing Title: PARTIAL DISTRIBUTION RISER DIAGRAM AND SCHEDULES
Approved Project Director: ---
Project Title: Relocate Generator and Upgrade Emergency Power, Building 113
Location: Ft. Meade, South Dakota
Date: 7/19/2013
Checked: DLB
Drawn: KAK
Project Number: 568-13-101
Building Number: 113
Drawing Number: E-601
Dwg. 6 of 6

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08–6231